

PREFACE

The first conference on the subject of High-Performance Concrete (HPC), and Performance and Quality of Concrete Structures was held in Florianopolis, Brazil in 1996 as a result of the initiative of Prof. Luiz Roberto Prudêncio and Prof. Paulo Helene of Brazil, supported by Dr. Mohan Malhotra and Prof. Kumar Metha from Canada and the U.S.A., respectively. The second conference on this subject was held in Gramado, Brazil in 1999, organized by Prof. Denise dal Molin, with more than 350 participants worldwide. The success of these International Conferences is recognized by the ABCP-Brazilian Cement Industry Association (IBRACON), Brazilian Concrete Institute, and the academic and professional communities. A significant number of the participants in the HPC conferences were young researchers. Conferences are really contributing to the best engineering and holistic vision of Brazil's concrete professionals for tomorrow.

Brazil has a huge experience in concrete structures design and construction since the beginning of the 1900s. In spite of this experience of more than 90 years, there have been few opportunities to show and to share this experience with ACI and other important worldwide organizations.

The Guinle Building, a 7-floor concrete office tower (28-m high) was inaugurated in 1916 in São Paulo, and is still functional. In 1929, the Martinelli concrete tower (106-m high), reached the world record in high-rise buildings, and is still in good condition. Also, in Rio de Janeiro, the Night Building was one of the highest concrete buildings in the world for many years.

In addition, many other concrete structures, like Itaipu Dam (largest in the world) and 13-km large Rio-Niteroi Bridge, are important concrete structures. Since the 1980s, new concrete structures using high-performance concrete have been built. In 1997, the highest concrete building in Brazil, 180-m high United Nations Towers, used 30,000 m³ of high-strength concrete (HSC) with $f'_c = 50$ MPa. This year the e-Tower Building with HSC $f'_c = 125$ MPa in columns is a new record in the world.

To make sure of the safety of the above developments, major research projects were undertaken in the Brazilian universities, and important exchanges of information with well-known researchers and institutions in the world was necessary. The Third Conference demonstrates the significance of these exchanges. More than 90 papers were received and 30 were accepted by the ACI review panel for publication in the ACI Special Publication, SP-207, as the proceedings of this conference. The Organizing Committee decided to publish many of those submissions that could not be included in the Special Publication as supplementary papers. In addition to the papers that have been published in the proceedings and supplementary volume, a number of other papers were also presented in the Conference.

The refereed proceedings and the volume containing supplementary papers contain interesting papers about HPC and HSC. Also, there are papers describing experiences in the use of recycled materials to obtain HPC, HPC for pavements, HPC with fibers, comparisons of different methods for proportioning mixtures, durability properties of HPC, and others showing that there are still many questions that remain to be answered.

We appreciate the distinguished members of the ACI review panel who reviewed the draft manuscripts in 2001 in Iguassu Falls during the 2001 IBRACON Conference. Without their prompt review and constructive comments, it would not have been possible to publish the proceedings for distribution at the conference. The cooperation of the authors in accepting reviewers' suggestions, and revising their manuscripts accordingly, is greatly appreciated.

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Editors

V. Mohan Malhotra

Paulo Helene

Armando Carneiro

Enio P. Figueiredo

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